

Claims

- [1] A method for management of a trunk line between an asynchronous mobile switching center and a synchronous mobile switching center for handover of a dual-band dual-mode mobile communication terminal capable of communicating with both an asynchronous mobile communication system and a synchronous mobile communication system, the method comprising the steps of:
checking a status of the trunk line between the asynchronous mobile switching center and the synchronous mobile switching center by transmitting/receiving at least one of trunk line management messages between the asynchronous mobile switching center and the synchronous mobile switching center, when the asynchronous mobile switching center and the synchronous mobile switching center are in an invoke state, the trunk line management messages including a circuit reset message, a circuit interruption message and a trunk line test message.
- [2] The method as claimed in claim 1, wherein the status of the trunk line is confirmed by the synchronous mobile switching center when a trunk line management message has been transmitted from the asynchronous mobile switching center to the synchronous mobile switching center and is confirmed by the asynchronous mobile switching center when the trunk line management message has been transmitted from the synchronous mobile switching center to the asynchronous mobile switching center.
- [3] The method as claimed in claim 1, wherein the asynchronous mobile switching center transmits a trunk line management message to the synchronous mobile switching center and then receives a response message for the trunk line management message or the synchronous mobile switching center transmits the trunk line management message to the asynchronous mobile switching center and then receives the response message for the trunk line management message.
- [4] The method as claimed in claim 1, wherein the circuit reset message is transmitted/received between the asynchronous mobile switching center and the synchronous mobile switching center when it is necessary to use a trunk line between the asynchronous mobile switching center and the synchronous mobile switching center or in order to reproduce status information of a damaged circuit and reset the damaged circuit.
- [5] The method as claimed in claim 3, wherein the circuit reset message includes a parameter (InterMSCCircuitID) of the internal switching center circuit ID and the response message includes a parameter (TrunkState) of the status information of the trunk line.

- [6] The method as claimed in claim 1, wherein the circuit interruption message is transmitted/received between the asynchronous mobile switching center and the synchronous mobile switching center in order to confirm interruption of a connection between the asynchronous mobile switching center and the synchronous mobile switching center.
- [7] The method as claimed in claim 1, wherein the circuit interruption message includes a parameter (InterMSCCircuitID) of the internal switching center circuit ID.
- [8] The method as claimed in claim 1, wherein the trunk line management messages further comprise a circuit interruption release message, and the trunk line is re-activated by the circuit interruption release message when the circuit interruption release message has been transmitted/received between the asynchronous mobile switching center and the synchronous mobile switching center.
- [9] The method as claimed in claim 1, wherein the trunk line test message is transmitted/received between the asynchronous mobile switching center and the synchronous mobile switching center in order to determine if the trunk line between the asynchronous mobile switching center and the synchronous mobile switching center exactly operates.
- [10] The method as claimed in claim 1, wherein the trunk line test message includes parameters of an internal switching center circuit ID (InterMSCCircuitID) and a seizure type (SeizureType).
- [11] The method as claimed in claim 1, wherein the trunk line management messages further comprise a trunk line test release message and a test of the trunk line is completed when the trunk line test release message is transmitted/received between the asynchronous mobile switching center and the synchronous mobile switching center.
- [12] A method for management of a trunk line between an asynchronous mobile switching center and a synchronous mobile switching center for handover of a dual-band dual-mode mobile communication terminal capable of communicating with both an asynchronous mobile communication system and a synchronous mobile communication system, the method comprising the steps of:
checking a status of the trunk line between the asynchronous mobile switching center and the synchronous mobile switching center by transmitting/receiving at least one of trunk line management messages through an interworking interoperability function unit between the asynchronous mobile switching center and the synchronous mobile switching center, the asynchronous mobile switching center and the synchronous mobile switching center being connected to the interworking interoperability function unit, the trunk line management messages

including a circuit reset message, a circuit interruption message and a trunk line test message.

- [13] The method as claimed in claim 12, wherein the asynchronous mobile switching center and the interworking interoperability function unit exchanges the trunk line management messages based on an ISUP protocol and the asynchronous mobile switching center and the interworking interoperability function unit exchanges the trunk line management messages based on an MAP protocol, in order to check the status of the trunk line between the asynchronous mobile switching center and the synchronous mobile switching center.
- [14] The method as claimed in claim 12, wherein the status of the trunk line is confirmed by the synchronous mobile switching center when a trunk line management message has been transmitted from the asynchronous mobile switching center to the synchronous mobile switching center through the interworking interoperability function unit and is confirmed by the asynchronous mobile switching center when the trunk line management message has been transmitted from the synchronous mobile switching center to the asynchronous mobile switching center through the interworking interoperability function unit.
- [15] The method as claimed in claim 12, wherein the asynchronous mobile switching center transmits a trunk line management message to the synchronous mobile switching center through the interworking interoperability function unit and then receives a response message for the trunk line management message, or the synchronous mobile switching center transmits the trunk line management message to the asynchronous mobile switching center through the interworking interoperability function unit and then receives the response message for the trunk line management message.
- [16] The method as claimed in claim 12, wherein the circuit reset message is transmitted/received between the asynchronous mobile switching center and the synchronous mobile switching center when it is necessary to use a trunk line between the asynchronous mobile switching center and the synchronous mobile switching center or in order to reproduce status information of a damaged circuit and reset the damaged circuit.
- [17] The method as claimed in claim 16, wherein the circuit reset message includes a parameter (InterMSCCircuitID) of the internal switching center circuit ID and the response message includes a parameter (TrunkState) of the status information of the trunk line.
- [18] The method as claimed in claim 12, wherein the circuit interruption message is transmitted/received between the asynchronous mobile switching center and the synchronous mobile switching center in order to confirm interruption of a

connection between the asynchronous mobile switching center and the synchronous mobile switching center.

- [19] The method as claimed in claim 12, wherein the circuit interruption message includes a parameter (InterMSCCircuitID) of the internal switching center circuit ID.
- [20] The method as claimed in claim 12, wherein the trunk line management messages further comprise a circuit interruption release message, and the trunk line is re-activated by the circuit interruption release message when the circuit interruption release message has been transmitted/received between the asynchronous mobile switching center and the synchronous mobile switching center.
- [21] The method as claimed in claim 12, wherein the trunk line test message is transmitted/received between the asynchronous mobile switching center and the synchronous mobile switching center in order to determine if the trunk line between the asynchronous mobile switching center and the synchronous mobile switching center exactly operates.
- [22] The method as claimed in claim 12, wherein the trunk line test message includes parameters of an internal switching center circuit ID (InterMSCCircuitID) and a seizure type (SeizureType).
- [23] A system for management of a trunk line between an asynchronous mobile switching center and a synchronous mobile switching center for handover of a dual-band dual-mode mobile communication terminal in a hybrid mobile communication system including both an asynchronous network and a synchronous network, the system comprising:
the asynchronous mobile switching center for transmitting a trunk line management message to the synchronous mobile switching center and receiving a response message from the synchronous mobile switching center, thereby confirming the status of the trunk line; and
the synchronous mobile switching center for transmitting a trunk line management message to the synchronous mobile switching center and receiving a response message from the synchronous mobile switching center, thereby confirming the status of the trunk line.
- [24] The system as claimed in claim 23, wherein the trunk line management message comprises at least one of a circuit reset message, a circuit interruption message and a trunk line test message.
- [25] The system as claimed in claim 24, wherein the circuit reset message is used when it is necessary to use the trunk line between the asynchronous mobile switching center and the synchronous mobile switching center or in order to

- reproduce status information of a damaged circuit and reset the damaged circuit.
- [26] The system as claimed in claim 24, wherein the circuit reset message includes a parameter (InterMSCCircuitID) of the internal switching center circuit ID and the response message includes a parameter (TrunkState) of the status information of the trunk line.
- [27] The system as claimed in claim 24, wherein the circuit interruption message is transmitted/received between the asynchronous mobile switching center and the synchronous mobile switching center in order to confirm interruption of a connection between the asynchronous mobile switching center and the synchronous mobile switching center.
- [28] The system as claimed in claim 24, wherein the circuit interruption message includes a parameter (InterMSCCircuitID) of the internal switching center circuit ID.
- [29] The system as claimed in claim 24, wherein the trunk line management messages further comprise a circuit interruption release message, and the trunk line is re-activated by the circuit interruption release message when the circuit interruption release message has been transmitted/received between the asynchronous mobile switching center and the synchronous mobile switching center.
- [30] The system as claimed in claim 24, wherein the trunk line test message is transmitted/received between the asynchronous mobile switching center and the synchronous mobile switching center in order to determine if the trunk line between the asynchronous mobile switching center and the synchronous mobile switching center exactly operates.
- [31] The system as claimed in claim 24, wherein the trunk line test message includes parameters of an internal switching center circuit ID (InterMSCCircuitID) and a seizure type (SeizureType).
- [32] The system as claimed in claim 23, further comprising an interworking interoperability function unit which receives the trunk line management message based on an ISUP protocol from the asynchronous mobile switching center and then transmits the trunk line management message based on an MAP protocol to the synchronous mobile switching center, and receives the trunk line management message based on an MAP protocol from the synchronous mobile switching center and then transmits the trunk line management message based on an ISUP protocol to the asynchronous mobile switching center.